

## Study Demonstrates Link Between Low ABI, Leg Symptoms, and Functional Decline in Walking Performance

*A Review of: Functional Decline in Peripheral Arterial Disease - Associations With the Ankle Brachial Index and Leg Symptoms. McDermott MM, Lui K, et al. JAMA. 2004; 292:453-461.*

An important study that examined the relationship between the presence and severity of PAD with changes in lower-extremity functioning over a 2 year period was published in JAMA on July 28, 2004. Although some previous work suggested that patients with PAD may gradually stabilize or improve, the new study found that patients with low ABI had significant functional decline in walking endurance over a two-year period. The study demonstrates that the results of ABI testing can be used to identify those who are at most risk of functional decline.

The study identified 676 individuals 55 years of age and older, and included individuals with PAD (n=417) and without PAD (n=259). Baseline functional walking assessments were performed between 1998 and 2000, and follow-up assessments were performed one and two years later. An ABI value obtained with a handheld Doppler of less than 0.90 was defined as a positive indicator of PAD. Study participants with PAD were classified into five groups: 1) claudication 2) leg pain during exertion and rest 3) atypical exertional leg pain/carry on (symptoms do not begin at rest and do not stop the patient from walking) 4) atypical exertional leg pain (symptoms do not begin at rest and do not include calf pain or resolve with 10 minutes of rest.) 5) asymptomatic (no leg pain when walking).

Each patient was evaluated for functional performance by a 6-minute walk (fast and

slow), a performance test of leg function, repeated chair rises, and standing balance. Performance was adjusted for age, sex, race, body mass index, cigarette use, comorbid diseases, and previous performance. Follow up evaluations were scheduled at 1-year and 2-year intervals.

### Results

The study found that participants with baseline ABI values less than 0.50 and those with ABI values between 0.50 and 0.90 had significantly greater decline in 6-minute walk performance compared with those who had baseline ABI values of 0.90 or greater. In fact, patients with ABI baseline values less than 0.50 had a more than 10-fold increased risk of becoming unable to complete the 6-minute walk test 2 years later compared to those with baseline ABI values of 1.10 to 1.50. Additionally, the study finds that patients with asymptomatic PAD who then develop leg symptoms are also likely to have lost functional performance. This finding suggests that if clinicians fail to detect PAD prior to the appearance of symptoms, additional functional decline will have occurred prior to detection.

### Summary

This study illustrates the importance of using the ABI exam to identify PAD and to determine which patients are at risk of functional decline.